

Serial No. 10/759,110

May 17, 2005

Reply to the Office Action dated January 19, 2005

Page 2 of 6

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A piezoelectric electro-acoustic transducer comprising:

- a substantially rectangular piezoelectric diaphragm that vibrates in a surface-flexural mode in the thickness direction of the diaphragm in response to application of an alternating signal between electrodes disposed thereon;

- a casing having a support unit disposed in an internal periphery thereof for supporting four corners of the piezoelectric diaphragm;

- a terminal fixed to the casing such that an internal connection portion of the terminal is exposed in the vicinity of the support unit;

- a first elastic adhesive for holding the piezoelectric diaphragm to the casing and arranged between an external periphery of the piezoelectric diaphragm and the internal connection portion;

- a conductive adhesive for electrically connecting an electrode of the piezoelectric diaphragm and the internal connection portion of the terminal and being arranged between the electrodes of the piezoelectric diaphragm and the internal connection portion of the terminal via the upper surface of the first elastic adhesive; and

- a second elastic adhesive for sealing between the external periphery of the piezoelectric diaphragm and the internal periphery of the casing; wherein

- a cradle is provided in the internal periphery of the casing and below the piezoelectric diaphragm in the vicinity of the first elastic adhesive to provide a gap for preventing a flow of the first elastic adhesive, the cradle ~~first elastic adhesive~~ is located

Serial No. 10/759,110

May 17, 2005

Reply to the Office Action dated January 19, 2005

Page 3 of 6

at a position lower than the support unit and between an upper surface of the cradle and a bottom surface of the piezoelectric diaphragm.

Claim 2 (original): A transducer according to Claim 1, wherein the casing is provided with a groove disposed in the internal periphery for receiving the second elastic adhesive, and an anti-flowing wall is disposed at a position lower than a support unit within the internal periphery of the groove for restricting the second elastic adhesive from flowing toward the bottom wall of the casing.

Claim 3 (original): A transducer according to Claim 1, wherein the first elastic adhesive has a Young's modulus of about 500×10^6 Pa or less after being cured and the second elastic adhesive has a Young's modulus of about 30×10^6 Pa or less after being cured.

Claim 4 (original): A transducer according to Claim 1, wherein the first elastic adhesive is a urethane adhesive and the second elastic adhesive is a silicone adhesive.

Claim 5 (original): A transducer according to Claim 1, wherein the gap between the upper surface of the cradle and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the first elastic adhesive by a surface tension of the first elastic adhesive between the cradle and the bottom surface of the piezoelectric diaphragm.

Claim 6 (original): A transducer according to Claim 2, wherein a clearance between the upper surface of the anti-flowing wall and the bottom surface of the piezoelectric diaphragm has a size which prevents a flow of the second elastic adhesive by a surface tension of the second elastic adhesive between the anti-flowing wall and the bottom surface of the piezoelectric diaphragm.

Serial No. 10/759,110

May 17, 2005

Reply to the Office Action dated January 19, 2005

Page 4 of 6

Claim 7 (original): A transducer according to Claim 1, wherein the piezoelectric diaphragm is a bimorph diaphragm including at least two piezoelectric ceramic layers, an internal electrode disposed between the at least two piezoelectric ceramic layers and principal plane electrodes provided on top and bottom surfaces of the at bimorph diaphragm.

Claim 8 (original): A transducer according to Claim 7, wherein the principal plane electrodes have a length that is less than a length of the piezoelectric ceramic layers.

Claim 9 (original): A transducer according to Claim 7, wherein the bimorph diaphragm includes end surface electrodes, said internal electrode being connected to one of said end surface electrodes, and said principal plane electrodes being connected to another of said end surface electrodes.

Claim 10 (original): A transducer according to Claim 1, wherein said diaphragm includes protection films provided on top and bottom surfaces of the diaphragm.

Claim 11-20 (canceled).